CONTENTS & ABSTRACTS

The paper presents various models of office and unskilled workers turnover. Recent insight into the collective turnover that takes a look at the effects of the employees interactions after the dismissal of one of them is mentioned. Finally the comparative analysis of the main factors affecting turnover of different kinds of employees is made and directions for future research are proposed.

Keywords: employees turnover, white-collar employees turnover, blue-collar employees turnover, collective turnover.

The problem of optimal control for a class of nonlinear objects with uncontrolled bounded disturbances is formulated in the terms of differential game. Special algorithmic procedures are implemented to find solutions to this equation in tempo operation of the facility. The results can be used to solve theoretical and practical problems encountered in mathematics, mechanics, physics, biology, chemistry, engineering sciences, management, and navigation.

Keywords: nonlinear uncertain dynamic system, differential games, Hamilton — Jacobi — Isaacs equation, algorithmic design.

The paper considers the problem of synthesis of optimal control mechanisms in an active system consisting of a center and a few active elements (AE) associated with each other to encourage the general fund, with incomplete knowledge center of the model parameters of AE. The optimal mechanisms, including planning procedures, functions, penalties and rewards, the procedure for determining the size and distribution of the fund promotion in which AE interested to report to the center of reliable information and execute plans are derived.

Keywords: organizational system, hierarchy, control mechanism, the principle of reconciliation, optimization, nonmanipulability.

Game-theoretical models of informational confrontation are considered in the framework of mob control problems, when control of agents is implemented simultaneously by two subjects with different preferences over the number of agents, whose equilibrium strategies are «be active».

Keywords: collective behavior, model of threshold decision-making, mob control, informational confrontation.

Within the frameworks of theoretical analysis of phenomenon described in part one of the paper the present part proposes organizational and legal technology of health public administration and possible mechanisms of its implementation in Russia by creating a new sphere of socio-governmental relations on the basis of cooperative health control.

Keywords: health phenomenon, quality of life, vital activities of people, health control process.

New methods for express and obvious evaluation of the financial performance of a company based on an improved version of the model of matrix balance were developed. The proposed methods enable to shorten the evaluation time saving necessary quality level. Methods for evaluation of absolute indicators of company's solvency, estimation of net working capital, net assets, and analysis of the capital structure are presented. Testing of the proposed methods showed their practical effectiveness for appropriate management decisions making.

Keywords: matrix balance of company, express evaluation of the financial condition of the company, evaluation methods of solvency, liquidity, capital structure.

Onboard systems for measurement of physical fields are evaluated. Utilization of such systems in geophysics and navigation is investigated. A structure of onboard measurement systems and their mathematical models are described in details; existing gravimeters, magnetometers and electromagnetic prospecting systems are reviewed. Processing of experimentally obtained data and existing approaches to solve ill-posed problems are studied as well.

Keywords: simultaneous localization and mapping, gravimetry, magnetic surveying, electromagnetic surveying.

Control by unmanned vehicle with two horizontal aerodynamic control surfaces in the modes of attitude stabilization and coordinated turn are considered. The quality of linear algorithms of roll angle control by the change of yaw angle is analyzed. The proposed algorithm guarantees the required quality of control that is confirmed by results of mathematical simulation.

Keywords: unmanned vehicle, mathematical model, control algorithm, attitude stabilization, stability region, roots hodograph.